

## CLAIMS

1. A multicarrier communication apparatus comprising:
  - converting means for converting a single information signal stream to a plurality of streams of information signals;
  - generating means for generating a multicarrier signal by superimposing a plurality of streams of information signals respectively on stream-specific carrier waves;
  - peak power detecting means for detecting peak power of said multicarrier signal; and
  - re-generating means for, when said peak power exceeds a threshold value, superimposing a signal for suppressing peak power instead of an information signal on a specific carrier wave among said carrier waves and re-generating the multicarrier signal at the time said peak power exceeded the threshold value.
2. The multicarrier communication apparatus according to claim 1, wherein(:) said converting means executes error correction coding processing on an information signal of a predetermined stream among said plurality of streams of information signals; and  
said generating means superimposes the information signal of each stream subjected to error correction coding processing on a stream-specific specific carrier wave.

3. The multicarrier communication apparatus according to claim 1, wherein said re-generating means uses at least one carrier wave selected from among all carrier waves  
5 as a specific carrier wave.

4. The multicarrier communication apparatus according to claim 1, wherein said re-generating means uses a random signal as a signal for suppressing peak power.  
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5. The multicarrier communication apparatus according to claim 1 wherein:

said re-generating means uses a signal for which amplitude and phase are limited as a signal for suppressing peak power; and  
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said re-generating means comprises storing means for storing multicarrier signal generation results computed beforehand, and re-generates a multicarrier signal using said stored generation results.  
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6. The multicarrier communication apparatus according to claim 1, wherein said re-generating means uses a signal for which amplitude is generally zero as a signal for suppressing peak power.  
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7. The multicarrier communication apparatus according to claim 1, further comprising clipping means for

performing clipping processing on a multicarrier signal for which peak power exceeds a threshold value among multicarrier signals generated by said generating means.

5 8. A communication terminal apparatus provided with a multicarrier communication apparatus, said multicarrier communication apparatus comprising:

converting means for converting a single information signal stream to a plurality of streams of  
10 information signals;

generating means for generating a multicarrier signal by superimposing a plurality of streams of information signals respectively on stream-specific carrier waves;

15 peak power detecting means for detecting peak power of said multicarrier signal; and

re-generating means for, when said peak power exceeds a threshold value, superimposing a signal for suppressing peak power instead of an information signal  
20 on a specific carrier wave among said carrier waves and re-generating the multicarrier signal at the time said peak power exceeded the threshold value.

9. A base station apparatus provided with a multicarrier communication apparatus, said multicarrier communication apparatus comprising:

converting means for converting a single

information signal stream to a plurality of streams of information signals;

generating means for generating a multicarrier signal by superimposing a plurality of streams of  
5 information signals respectively on stream-specific carrier waves;

peak power detecting means for detecting peak power of said multicarrier signal; and

re-generating means for, when said peak power  
10 exceeds a threshold value, superimposing a signal for suppressing peak power instead of an information signal on a specific carrier wave among said carrier waves and re-generating the multicarrier signal at the time said peak power exceeded the threshold value.

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10. A multicarrier communication method comprising:

a converting step of converting a single information signal stream to a plurality of streams of information signals;

20 a generating step of generating a multicarrier signal by superimposing a plurality of streams of information signals respectively on stream-specific carrier waves;

a peak power detecting step of detecting peak power  
25 of said multicarrier signal; and

a re-generating step of, when said peak power exceeds a threshold value, superimposing a signal for suppressing

peak power instead of an information signal on a specific carrier wave among said carrier waves and re-generating the multicarrier signal at the time said peak power exceeded the threshold value.